



# AssistNow® Offline

## Offline A-GPS Solution

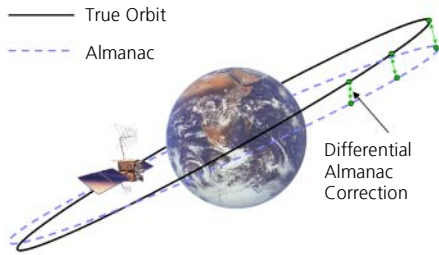
### Automotive and Mobile Terminal Applications

Patent Pending – Preliminary Data

#### Overview

AssistNow Offline is an A-GPS service that boosts GPS acquisition performance, bringing Time To First Fix (TTFF) down to seconds. Unlike AssistNow Online, this solution enables instant positioning without the need for connectivity at start-up.

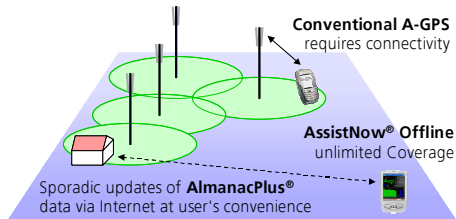
The system works by using AlmanacPlus® differential almanac correction data to speed up acquisition, enabling a position fix within seconds. Users access the data by means of occasional Internet downloads, at the user's convenience.



u-blox provides AlmanacPlus data files in different sizes, which contain differential almanac corrections that are valid for a period of between 1 and 14 days thereafter. Users can download correction data anytime they have an Internet connection, for example at home or in the office. The GPS receiver stores the downloaded data in the non-volatile Flash EPROM.

#### Truly Global Coverage

AssistNow Offline works in locations without any wireless connectivity (depicted outside green circles in the figure below) as the correction data files reside in the receiver. This makes them immediately available upon start-up, eliminating connection set-up delays, download waiting times and call charges.



#### Benefits

- **Short Time To First Fix (TTFF)**
- **No mobile connectivity needed at start-up**
- **AlmanacPlus data lasts up to 14 days**
- **Truly global coverage**
- **Robust service, even under poor signal conditions**
- **No external CPU assistance needed at start-up**
- **Cost-efficient; easy to install and to operate**

#### Applications

AssistNow® Offline is suitable for a wide spectrum of end products with and without connectivity:

- Personal mobility
- OEM and aftermarket vehicle navigation devices
- Mobile phones, smartphones, PDAs
- Fleet management and dispatch systems
- Personal and vehicle security solutions
- Professional products

#### Positioning Accuracy

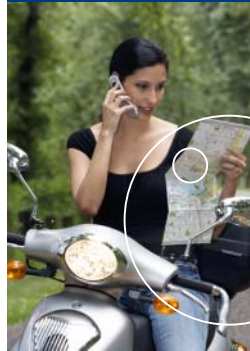
Positioning accuracy decreases relative to data correction file duration, where 1-3 day files are have relatively high accuracy and 10-14 day files progressively lose accuracy. Regular updates help to ensure a high level of position accuracy.

#### AssistNow Offline Services

	Free Service	Premium Service
Days covered:	1,3,5,7,10	1,2,3,5,7,10,14
New updates:	1 x / day	min. 3 x / day

The Free Service provides offers no service level guarantees regarding availability, response times and bandwidth. Premium Service users are guaranteed a minimum of three updates per day under a service level agreement provided.

*your position  
is our focus*



## AssistNow Offline Framework

### Global Reference Network

The AssistNow Offline framework utilizes the International GNSS Service (IGS) operating a global network of GPS receivers where data such as precise orbital paths of all satellites is collected. u-blox data services then calculates the AlmanacPlus orbit forecast data by applying astronomic and gravitational models.

### AssistNow Offline Root Server

The u-blox AssistNow Root Server compresses the data and bundles it into correction data files valid from 1 to 14 days. The size of the packet increases with the length of the prediction period. Premium Service users are ensured a minimum of three AlmanacPlus data updates per day.

### Customer Proxy / Mirror Servers

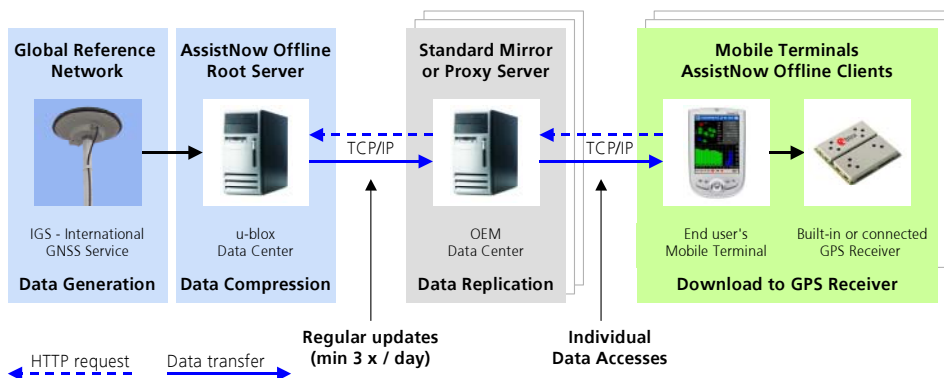
Customers or OEMs who wish to offer AssistNow Offline services in their end products require a standard, off-the-shelf HTTP proxy or mirror service to replicate AlmanacPlus data on their own website. Customers can freely scale the server infrastructure as required.

### End Products

All ANTARIS 4 GPS receivers with Flash EPROM and u-blox 5 GPS receivers support AssistNow Offline. Bespoke firmware and a small piece of software in the host CPU in the mobile terminal that enables the downloads are all that is required for the service to work on a terminal.

The GPS receiver automatically checks for valid correction data in the Flash EPROM at start-up and uses it when no corresponding valid Ephemeris information is available.

## AssistNow Offline Framework



## Receiver Performance Data

<b>GPS Technology</b>	ANTARIS 4, u-blox 5	
<b>AssistNow Offline capable GPS receivers</b>	Modules:	LEA-4H, TIM-4H LEA-4P, TIM-4P
	Receiver Bd's:	RCB-4H
	Chipset designs:	ATR0621 baseband IC with min. 4 Mbit Flash
<b>Achievable TTFF</b>	Warm starts:	2 ... 20 s
	Cold starts:	15 ... 30 s
<b>Accuracy at first position fix <sup>1</sup></b>	1 day:	typ. 25 m
	3 days:	typ. 70 m
	5 days:	typ. 100 m
<b>Max. Acquisition Sensitivity</b>	ANTARIS 4:	-148 dBm

<sup>1</sup> Assuming no orbit maneuvers or clock swaps

## Interfaces

<b>Client ↔ Server:</b>	TCP/IP via Internet, HTTP: accesses
<b>GPS Protocol</b>	UBX Binary Protocol
<b>File Sizes of Correction Data</b>	1 day: ca 9 ... 10 KB 3 days: ca 45 ... 50 KB 14 days: ca 90 ... 100 KB

## Support Products

**Free Demonstration Package** AlmanacPlus demo package with data download, for any u-blox module containing Flash memory or following evaluation kits: AEK-4P and AEK-4H

## Ordering Information

<b>SAL-MS-0-000-0</b>	AssistNow Offline – Free Service
<b>SAL-MS-1-000-0</b>	AssistNow Offline – Premium Service

Please contact u-blox to order these AssistNow services.

Performance characteristics shown in this document are estimates only and do not constitute a warranty or guarantee of product performance. u-blox does not support any applications in connection with weapon systems. Since u-blox products are not designed for use in life-support and commercial aviation applications they shall not be used in such products. In devices or systems whereby malfunction of these products can be expected to result in personal injury and casualties, u-blox customers using or selling these products do so at their own risk and agree to keep u-blox harmless from any consequences. u-blox reserves the right to make changes to this product, including its circuits and software, in order to improve its design and/or performance, without prior notice.

u-blox makes no warranties, neither expressed nor implied, regarding the information and specifications contained in this document. u-blox assumes no responsibility for any claims or damages arising from information contained in this document, or from the use of products and services detailed therein. This includes, but is not limited to, claims or damages based on the infringement of patents, copyrights, mask work and/or other intellectual property rights.

u-blox integrated circuits, software and designs are protected by intellectual property laws in Switzerland and abroad. u-blox, the u-blox logo, the TIM-type GPS module, Antaris, SuperSense, "your position is our focus", NavLox, u-center, AssistNow, AlmanacPlus, FixNow and EKF are (registered) trademarks of u-blox AG. This product may in whole or in part be subject to intellectual property rights protection. Please contact u-blox for any additional information.